ADDRESSING WATER QUALITY IN AGRICULTURE: INSTITUTIONAL ASPECTS AND PROSPECTS

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There can be little doubt that agriculture is America's # 1 water quality challenge of the 21st Century. This is not because farms are huge polluters, but because other sources have been largely controlled and the non-point sources, of which farming is one, rise to the top of the "to do" list. The United States Environmental Protection Agency (USEPA) asserts, based on water quality sampling and other studies, that 40% of surveyed waters are still not "fishable and swimmable" and agriculture is most of the problem. The institutional history of agricultural water quality management in the U.S. has emphasized mandatory measures for confined animal feeding operations (CAFO) larger than 1000 animal units and voluntary measures for non-point sources. The latter are the primary interface between farms and water in this country today. The key policy question is whether this voluntary, incentive based approach will hold up, or be replaced by a more regulatory policy regime. There are clearly pressures for the tougher approach.

CAFO Rules Under Review

USEPA is currently conducting hearings on a proposed set of revisions to the regulations governing approximately 39,000 CAFO's across the U.S. Current rules are apparently not solving the problem – nutrients from animal manure are polluting the nation's water. The changes would lower the size threshold for livestock operations requiring "national pollution discharge elimination system" (NPDES) permits from 1000 animal units to 300 under one scenario and 500 in an alternative. Under the 300 AU model, burden of proof would be on the farmer to demonstrate that he is not polluting and therefore does not need a permit. Under the 500 AU approach, CAFO simply would be redefined at that lower level with all of the permit rules in place. Further, the new rules would tighten the definition of animal units, more closely monitor the spreading of livestock manure, and would eliminate the current exemption for a "catastrophic storm event," defined as a 25 year, 24 hour storm. All CAFO's would have to analyze possible hydrologic links between manure storage areas and groundwater. USEPA has estimated the compliance cost for CAFO farmers at a hefty $850 million to $940 million a year.

Will new CAFO rules be enacted? The estimated cost is high, real, and concentrated; the benefits of the new rules are potential and widely dispersed. That is a formula for pointed debate between farm interests concerned about the viability of smaller CAFO's and groups arguing the public's interest in cleaner water.

I doubt that there is widespread popular sympathy for CAFO's. Most of us like a good steak, but CAFO's are a first order LULU.[1] People like farms in general, the green open space that provides welcome aesthetic relief from suburban sprawl. But large confined livestock farms are not part of that picture. A few animals grazing on the rolling hills – that's OK. But not CAFO's. Further, there is little public support for large farms that seem more like food factories than family-run businesses. States have their own CAFO rules as well, some going beyond the current NPDES requirements. Operator licensing and nutrient management plans are required in several states; some have lower CAFO thresholds than federal law.

TMDL's and Non-Point Pollution

All states are in the process of calculating Total Maximum Daily Loads (TMDL) for selected pollutants in certain watersheds. These are essentially "pollution budgets" for each stream to be allocated among water users, presumably including farms as non-point sources. The job is to be completed within the next 15 years. This is not a new law. TMDL's are part of the 1972 Clean Water Act, but the policy thrust is new and agriculture is right in the middle of it.

Section 303d of The Clean Water Act directs all states to identify the offending stream segments and then assure that TMDL's are not exceeded. States have generally not proceeded aggressively, and until recently USEPA has not pressed the matter. Several lawsuits have helped spur USEPA to action. At issue is whether Section 303d is intended to include non-point sources or whether non-point coverage is meant to be limited to Section 319 dealing with watershed management. EPA believes that it has the authority and is gently pushing the states to respond. So far, however, primary discretion remains with the states in handling non-point and blending point and non-point rules. But states know that non-point is the primary problem, leading them inevitably to the farm gate.

Given the dispersed nature of farming and the lack of clarity on pollutant releases from specific farms, the non-point implementation will necessarily depend on modeling and stochastic definitions of pollution sources. Jim Boyd at Resources for the Future has stated, " A lack of scientific certainty will not by itself legally hobble TMDL plans, since certainty is not a prerequisite for program implementation" (2000, p.10). But he asserts that this uncertainty places greater emphasis on scientific reliability of the data and models used to estimate pollution discharges from various sources and the management schemes. There will be expert panels, review procedures and other iterative steps to develop defensible and effective policy. States must give "reasonable assurance" that TMDL's will be met, including those rural watersheds where farms are the primary source. In many instances, such assurance must go beyond the usual voluntary cost-sharing approach to have any possibility of success. There must be some evidence that the state's non-point strategy will reduce pollution loads. If state action is not sufficient, USEPA must put a TMDL plan for that state in place. This gets EPA very close to the "no-fly zone" for federal control of land use within states, a dangerous point at best. Since the courts and prevailing public opinion prohibit federal regulation of state land use patterns, it is questionable whether USEPA could carry out its own TMDL plan (Hazlett and Rogers, 2000).

[1] Locally Undesirable Land Use

The California Farm Bureau recently contested the USEPA authority to include non-point sources in TMDL calculations under section 303 of the U.S. Clean Water Act. The California Supreme Court subsequently ruled that 303 *does* include non-point and that TMDL's could be implemented for polluted streams that draw only from non-point sources. The battle lines are drawn, as various environmental groups have entered the fray. The costs of compliance could be very high, with no real assurance that actions by any specific farm will reduce the overall water quality problem.

Agriculture faces some important questions of political strategy in this whole matter. I would contend that the American people want and feel that they deserve cleaner lakes and streams. It is increasingly apparent that farms are a big part of the problem. At the same time, surveys show that farms and farmers enjoy enormous support among U.S. consumers. People feel that farming is an honorable and admirable profession. It is doubtful that USEPA has such broad general support as an organization, but the desired outcomes of clean air and water are strongly held values. One obvious strategy for agriculture is to draw on that reservoir of good will for farming and resist efforts to "raise the bar" for farmers as land and water stewards. That is the tendency so far. Major farm organizations have sought to exempt agricultural non-point sources from TMDL's and maintain the voluntary, incentive-based approaches that have long prevailed. They have quibbled with definitions and tried to invoke the "sound science" shield, when it really is a question of *whose* science will prevail. In my view, that is a losing strategy, for several reasons:

1. Consumers' support for farming will not extend to land and water abuse. Demands for cleaner water relate to family health and safety, while support for the amenity open space and life style features of farming is softer. An important reality is that *most* of the popular appeal of farming and farmland stems from these open space amenities, not from the food commodities these farms produce.
2. Consumers/taxpayers are more generally aware than ever before of the huge financial investments they have made in farming. The scheduled phase-out of income supports with the Federal Agriculture Improvement and Reform Act (FAIR) of 1996 has yielded to huge emergency payments, and people know it. They still support farming and the needed financial help, but expect something in return. That "something" includes safe food, land stewardship, and water quality, among other things.
3. As noted above, farm consolidations, contract farming and large-scale livestock production erode the popular image of farming as a family enterprise with all of its attendant virtues. Increasingly, people feel that large farms should have the same obligations as other industries. That includes whatever it takes to clean up the nation's waterways that are choked with sediment and other farm-based pollutants.
4. Many states have already beefed up non-point enforcement, both to avoid and respond to farm-based pollution. Cost sharing, incentives, and technical assistance are still important, but not the only instruments for change. Oregon requires farmers to develop and follow water quality plans. Maryland can levy fines when soil or sediment is discharged into state waters. Maryland farmers must follow nutrient management plans. Wisconsin relies on local enforcement of water quality rules. The trend is clearly toward more mandatory measures.

Conclusions

I do not see a major crackdown on farms in the near future. U.S. policy is always incremental. But I do see the need for agricultural interests to take a positive stance on water quality. We know that most farmers do care about water quality, but it is time for them to be out in front on the issue. They must act preemptively, to do what is necessary to measurably reduce farm-based pollution and to work *with* consumer and natural resource groups in the process. They cannot successfully demand payment for any on-farm change that may improve conditions for the general public.

Land ownership and private property rights are absolutely essential in the U.S. political economy, and nowhere is that more true than in agriculture. It is also true, however, that private rights and responsibilities in land use are defined in a broad social context that includes the rights of non-owners. That context is constantly evolving, and farmers must be part of the change.

Two trends show particular promise for farmers and improved water quality. The first is increased emphasis on watershed management that can tailor the policy mix to the resources and people of that region. These cannot be just new ways to hand out federal and state incentives to farmers. They must establish real water quality goals, and then meet them. Some level of enforcement may well be necessary, but at least the process will be local, within a state umbrella. There will be opportunities for public involvement in setting targets and establishing policy. Farmers must be a part of that.

The second trend is toward such institutional innovations as permit trading between point and non-point sources within an overall TMDL framework for a watershed, and “green payments” for environmental amenities in conjunction with reducing environmental damage. The former permits water users who can meet compliance standards relatively cheaply to sell the “right to pollute” to a user for whom compliance is more costly. Thus improved water quality is achieved at a lower cost to all. There has been some experimenting with permit trading, but little clear evidence of effectiveness. The information costs under such schemes (establishing trading ratios, etc.) can be quite high. The latter would reward farmers for providing such open land amenities as wildlife habitat, groundwater recharge, and rural aesthetics, while holding them responsible for cleaner water. A cross-compliance procedure within mandatory water quality improvement standards and timetable might work.

The challenges of implementing such programs are substantial, but the stakes for agriculture are such that the effort is worthwhile. The American people want cleaner water and will insist that farmers do their part to assure that it happens. Strong command and control methods are not sufficient or even necessary if other means are adopted. But there will be a strong regulatory underpinning to any future agricultural non-point abatement effort.

Selected References

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